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## RESEARCH

### Ações preventivas em úlceras por pressão realizadas por enfermeiros na atenção básica

Preventive actions in pressure ulcers carried out by nurses in primary care

Las acciones preventivas en úlceras por presión efectuadas por enfermeros en la atención primaria

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### ABSTRACT

**Objective:** to analyze the risk score of Pressure ulcer for bedridden patients at home and the preventive measures undertaken by nurses from Family Health Strategy in the city of Teresina, PI. **Method:** descriptive cross-sectional research. Data were collected in November and December 2014 through interviews with 6 nurses and 32 bedridden at home of the six surveyed teams. **Results:** most patients were elderly female and had one or more risk factors. The moderate risk of developing this disease had the greatest frequency (50%). The nurses knew the main measures to avoid them, however, they used only and / or mainly the low-risk ones. **Conclusion:** the measures carried out or taught were insufficient to meet the needs of these patients because most were classified as moderate and high risk on the Braden scale, and the Ministry of Health recommends the combination of other measures. **Descriptors:** Primary health care, Pressure ulcer, Nursing.

### RESUMO

**Objetivo:** analisar o escore de risco de úlceras por pressão em pacientes acamados no domicílio e as medidas preventivas realizadas por enfermeiros da Estratégia Saúde da Família no município de Teresina-PI, Brasil. **Método:** investigação descritiva de corte transversal. Dados coletados em novembro e dezembro de 2014 por meio de entrevista com seis enfermeiros e 32 acamados domiciliares das seis equipes pesquisadas. **Resultados:** a maioria dos pacientes era idosa, do sexo feminino e apresentava um ou mais fatores de risco. O risco moderado de desenvolvimento desse agravo possuiu maior frequência (50%). Os enfermeiros conheciam as principais medidas para evitá-las, no entanto utilizavam somente e/ou principalmente as de risco baixo. **Conclusão:** as medidas realizadas ou orientadas eram insuficientes para atender às necessidades dos pacientes, pois a maioria foi classificada como risco moderado e alto na escala de Braden cujo Ministério da Saúde recomenda a associação de outras medidas. **Descritores:** Atenção primária à saúde, Úlcera por pressão, Enfermagem.

### RESUMEN

**Objetivo:** analizar la puntuación de riesgo de UPP en pacientes encamados y las medidas preventivas adoptadas por las enfermeras de atención primaria en la ciudad de Teresina, PI. **Método:** investigación descriptiva de corte transversal. Los datos fueron recogidos en noviembre y diciembre de 2014 mediante entrevistas con 6 enfermeras y 32 encamados de los equipos. **Resultados:** la mayoría de los pacientes son ancianas y tiene uno o más factores de riesgo. El riesgo moderado de desarrollar esta enfermedad tiene mayor frecuencia (50%). Los enfermeros saben las principales medidas para evitarla, pero utilizan solamente y / o principalmente las de bajo riesgo. **Conclusión:** las medidas adoptadas son insuficientes para satisfacer las necesidades de estos pacientes ya que la mayoría fue clasificada como de riesgo moderado y alto en la escala de Braden, y el Ministerio de Salud recomienda la combinación de otras medidas. **Descritores:** Atención primaria de salud, Úlceras por presión, Enfermería.

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## INTRODUCTION

**P**ressure ulcers (PU) have been the cause of great concern for practitioners and health systems, since the occurrence brings impact for these patients and their families, prolongation of hospitalization and increased risks of infection and other preventable diseases.<sup>1</sup>

The PU is an injury caused mainly by the combination of three factors: unrelieved pressure, shear and friction. Often, they are located in areas of bony prominences and, besides causing tissue damage, can cause numerous complications and worsen the clinical status of people with restriction in mobilizing the body.<sup>2</sup>

The etiology is multifactorial, including intrinsic and extrinsic factors to the individual, such as age, comorbidities, mobility conditions, nutritional status and level of consciousness, among others.<sup>3</sup> The epidemiological profile of people who develop the lesion is composed of elderly with chronic and degenerative diseases, such as diabetes mellitus or hypertension, presence of urinary incontinence and use of antibiotics.<sup>2</sup>

Clinical effects represent costly spending for health systems, and the adoption of preventive measures has become critical because about 95% of these ulcers can be avoided.<sup>4</sup>

Prevention, in all levels of care, requires systematic approach consisting of the evaluation of the patient in a service and of the possible risks, followed by appropriate actions, involving the entire health team.<sup>5</sup>

Overall, the literature contains variations related to the incidence and prevalence of PU, differentiating long term care, acute care and home care. Regarding the latter, prevalence rates vary between 0% and 29% and incidence between 0% and 17%.<sup>1</sup>

As regards the recommended interventions for prevention of PU, they must be carried out in vulnerable individuals of all age groups who are at risk of developing it in a hospital or home environment.<sup>1</sup>

In the field of public health and primary care, the Family Health Strategy (FHS) is crucial to establish and reorganize the care model provided at home.<sup>5</sup>

One of the important actions of the FHS is related to home care. This is a form of health care that is substitute or complement to those existing, in which actions of health promotion, prevention and treatment of illness and rehabilitation to guarantee continuity of care and integrated to Health Care Networks will be carried out at home.<sup>6</sup>

To prevent PUP in bedridden patients, the use of risk prediction scales is essential in order to assess the risk that the client has to develop these lesions, as well as the

identification of specific factors that put them at risk.<sup>7</sup> Despite the large possibility of using scales and instruments for evaluating the risk of the patient developing PU, most hospitals do not use protocols for prevention and treatment of pressure ulcers. In primary care, the situation is no different, since care for the prevention and treatment of pressure ulcers in bedridden patients are under the responsibility of the caregiver and the family, many of which are empirically performed, without guidance and supervision of health professionals.

From the considerations above, this research is justified by the limited knowledge of the professionals on the subject studied and lack of research on the issue of PU in primary care and in the city of Teresina, PI, Brazil and the lack of protocols to guide the prevention and treatment of these lesions, particularly on the most vulnerable population, such as the bedridden, in order to motivate nurses to adopt the behavior they deem more appropriate or delegating care exclusively to caregivers and family.

Given the above, this study aimed to analyze the risk score of PU in bedridden patients at home and the preventive measures undertaken by the FHS nurses.

## METHOD

This is a descriptive, cross-sectional study, with a quantitative approach, developed with nurses and bedridden people living in the coverage area of six teams of FHS, based on two Basic Health Units (BHU), located in the north of the city of Teresina, Piauí, and that develop their activities in the afternoon. Teams chosen for the research had 32 bedridden people enrolled.

Since the total population of nurses and bedridden patients was small, it was used in its entirety for the research, thus avoiding unrepresentative and unreliable sampling. Therefore, participants were six nurses and 32 patients bedridden.

As inclusion criterion for the population of nurses, it was established length of service of at least one year in the FHS. Exclusion criterion included being away due to vacation or sick leave during the data collection period.

Regarding the population of bedridden patients, the inclusion criteria were: living in the limited area, being older than 18, being bedridden at home or having prolonged immobility. Patients who were not characterized as bedridden or with restricted immobility at the time of the visit were excluded from the study.

Data collection was held between November and December 2014, through interviews conducted by the researchers directly with nurses in BHU and the bedridden patients during home visits previously scheduled by community health workers or in the BHU, where the physical examination of the skin was also performed.

For data collection, authors used two semistructured interview scripts. The first, for nurses, was composed of issues related to sociodemographic data, data on training, data on work experience and PU prevention measures. The second, for bedridden patients, had



questions about sociodemographic data, clinical conditions and classification of risk score for PU according to the Braden Scale.

As for risk assessment, patients were evaluated in the six subscales that make up the Braden scale: sensory perception, moisture, physical activity, mobility, nutrition, friction and shear.<sup>8</sup> Score 18 was considered the cutoff point, which is the same described in the protocol for PU prevention of the MOH. The risk classification was also the same: low (15-18 points); moderate (13 to 14); high (10 to 12); very high risk (0-9).<sup>1</sup>

After collecting the data, authors used the Statistical Package for Social Sciences (SPSS, version 18.0) for Windows for organizing and analyzing data. Quantitative variables were presented through descriptive statistics (mean and standard deviation) and qualitative variables through ratio in tables.

The study follows the ethical recommendations of Resolution No. 466 of 12 December 2012<sup>9</sup> and was evaluated by the Ethics Committee of the Federal University of Piauí that gave its assent, as Certificate of Presentation for Ethical Consideration registration number 34048014.9.0000.5214 of 10/11/14.

## RESULTS E DISCUSSION

Participants were six FHS nurses and 32 bedridden patients served by these teams at home. Table 1 shows the demographic profile data of bedridden participants.

In the primary care level, users who need home care are those with health problems that are controlled / compensated, with some degree of dependency for activities of daily living, and who cannot reach the health unit. They need visits from the health team for evaluation, referrals to specialists, prescription, and guidance on nutrition, medications, personal hygiene, disease prevention and disease control.<sup>9</sup>

In the sample, there was prevalence of women (20 to 62.5%), which was expected, since women account for 51% of the population and men 49%.<sup>10</sup> This proportion can be attributed to the increase of men's mortality rate and the increase in women's life expectancy at birth.<sup>11</sup>

As to age, the mean age was 82.8 ( $\pm$  14.0) and two (6.2%) were younger than 60 years old, so the majority of the sample consisted of elderly, and 15 (46.9%) of the patients were between 80 and 90 years of age (Table 1). This date is important, since the elderly have predisposing conditions for the development of pressure ulcers, whether by the very effect of aging on the human body, whether by a greater predisposition to non-communicable chronic diseases that increase the chances of clinical complications and thus the occurrence of pressure ulcers.<sup>12</sup>

With regard to marital status, there was predominance of widowed people (19 to 59.4%), followed by married (08-25%). Most patients (62.5%) did not complete primary school

and nine (28.1%) had no schooling (Table 1). Thus, the percentage of people aged 25 years or older with no schooling or with incomplete primary was 49.3%.<sup>10</sup>

The most frequent family income among patients varied from 1 to 2 minimum wages, accounting for 50% of the sample and 3 (9.4%) received less than one minimum wage (Table 1). Other key information on the issue of PU was the economic condition, particularly with regard to treatment, given that it is expensive, so the importance of prevention. A prevention program developed in the hospital in Chile showed that adhering to prevention makes the cost lower than instituting treatment when this injury is already present. In 1995, according to the study, expenditures amounted US \$ 240,000.00 and, after installing the program in 1997-1998, there was a reduction of expenditures to \$ 11,000, with cost / benefit ratio of 1/21.<sup>13</sup>

**Table 1 - Sociodemographic profile of bedridden patients with UP participating in the research (n=32)**

Variables	n	%
<b>Gender</b>		
Male	12	37.5
Female	20	62.5
<b>Age group (in years)</b>		
< 60	02	6.2
60-80	07	21.9
80-90	15	46.9
>90	08	25.0
Mean (M.D.)	82.8 (±14.0)	
<b>Marital status</b>		
Single	02	6.2
Married	08	25.0
Divorced	03	9.4
Widow(er)	19	59.4
<b>Education</b>		
Without	09	28.1
Primary School	20	62.5
Incomplete	02	6.3
Incomplete High	01	3.1
<b>School</b>		
Incomplete Higher	01	3.1
<b>Education</b>		
<b>Family income* (in salaries)</b>		
< 1	03	9.4
1-2	16	50.0
2-3	09	28.1
3-4	01	3.1
4-5	01	3.1
>5	02	6.3
<b>Total</b>	<b>32</b>	<b>100.0</b>

Source: direct search.

\* MW: Minimum Wage in November 2014 (R\$=728.00)

Regarding clinical data of patients disclosed in Table 2, it was observed that 28 (87.4%) of bedridden patients were cared for by a family member. In Canada, research on elderly patients with chronic diseases found that family members were responsible for 78% of general care. Among adults victims of stroke, aged 50 or older, 98% of the caregivers were family members. Such consistency of results shows the important role of the family in home care provided to elderly or adults with restricted mobility.<sup>14</sup>

The intrinsic risk factors for developing PU influence both the integrity and constitution of the skin and internal structures and also the healing time, such as nutritional status, level of consciousness, advanced age, urinary or fecal incontinence, reduced or absent mobility, body weight (less fat, less protection on bony prominences), diseases (diabetes, hypertension, peripheral vascular disease, cancer and others) and use of medications (antibiotics, immunosuppressants and beta-blockers).<sup>15</sup>

The use of continuous medication was reported by 29 (90.6%) of patients interviewed. Antihypertensive drugs were used by 24 (82.8%) patients; 6 (20.7%) and 10 (34.5%) reported using analgesics and diuretics, respectively. Other drugs such as anticoagulants, anxiolytics, drugs for diabetics and antibiotics were cited by 27 (93.1%) (Table 2). The continuous use of antihypertensive drugs predisposes the development of pressure ulcers by reducing the blood flow and tissue perfusion, which makes patients more susceptible to the pressure.<sup>16</sup> The use of analgesic drugs also facilitates the development of PU, since it reduces the natural stimulus of changing position in face of discomfort and consequent reduction of pressure relief, thereby facilitating the development of the lesion.<sup>17</sup>

The underlying diseases most frequently found among patients were hypertension (24 to 75.0%), urinary or fecal incontinence (22 to 68.8%) and stroke (19 to 59.4%) (Table 2). Stroke and hypertension, chronic diseases associated with increasing age, which was the profile found in the study, are diseases that can often cause immobilization in bed, deficient nutritional status and pressure on bony prominences, and are frequent causes of damage to skin integrity.<sup>18</sup>

Another important finding was the high frequency of fecal and urinary incontinence, because this condition is one of the main risk factors for PU. Frequent contact of the skin with moisture coming from the feces and urine generates changes in the structure and function, changing the skin barrier and causing the rupture of this. Patients with fecal incontinence have 22 times more risk of developing PU, compared to those with the same age and risk factors, but without incontinence.<sup>19</sup>

**Table 2** - Clinical data of bedridden patients with PU participating in the research (n=32)

Variables	n	%
<b>Main caregiver</b>		
Formal caregiver	02	6.3
Family member	28	87.4
Friend	02	6.3
<b>Use of medication</b>		
Yes	29	90.6
No	03	9.4
<b>Which medication*</b>		
Antihypertensive	24	82.8
Analgesics	06	20.7
Diuretics	10	34.5
Others	27	93.1
<b>Underlying disease **</b>		
Diabetes	12	37.5
Arterial hypertension	24	75.0
Stroke	19	59.4
Gastrointestinal disorders	03	9.4
Urinary and fecal incontinence	22	68.8
Obesity	06	18.8
Other diseases	05	15.6
<b>Total</b>	<b>32</b>	<b>100.0</b>

\* Percentage for the patients who take medications (n=29).

\*\* Multiple choice questions.

The prevalence of patients with PU was 28.1%, since nine of the 32 patients interviewed had pressure ulcers. Such prevalence is high when compared to another study also conducted with bedridden patients and attended by FHS teams in Teresina, where the prevalence was 13.33% <sup>(11)</sup>.

As for the bedridden time, the majority of patients (59.4%) had been in this condition for 1 to 5 years, and the main reason was stroke (17 to 53.1%), followed by falling from their own height (6 to 21.9%). When evaluated the skin conditions of the patients, 19 (59.4%) had dry skin and 26 (81.2%) had decreased turgor and elasticity. In investigating the position and bed linen, 23 (71.9%) stayed in the same position for more than two hours and 26 (81.2%) had folds in the bed linen (Table 3).

Patients with restriction of movement and sensitivity are the main affected by these injuries. Contact pressure greater than 32 mmHg for arterioles and 12 mmHg for venules for a prolonged period is the main risk factor, since it prevents adequate blood flow, reduces the nutrition at the site and promotes tissue damage. Other two risk factors are shearing force, which occurs when the patient remains immobile on the bed, while the skin layers keep moving, and the friction that occurs when two surfaces rub against each other.<sup>20</sup>

The development of pressure ulcers is therefore a complex phenomenon that involves factors related to the patient and external environment.<sup>17</sup>



**Table 3** - Data on PU in bedridden patients participating in the research (n=32)

Variables	n	%
Bedridden time (in years)		
< 1	08	25.0
1 - 5	19	59.4
> 5	05	15.6
Reason for being bedridden		
Stroke	17	53.1
Spinal cord trauma	02	6.2
Fall from the one's own high	07	21.9
Others	06	18.8
Dry skin		
Yes	19	59.4
No	13	40.6
Decreased turgor and elasticity		
Yes	26	81.2
No	06	18.8
Previous ulcer		
Yes	09	28.1
No	23	71.9
Same position for 2 hours		
Yes	23	71.9
No	09	28.1
Presence of folds in bed linen		
Yes	26	81.2
No	06	18.8
Total	32	100.0

Source: direct search

As for the sociodemographic profile of nurses surveyed, most were female, half (50.0%) were younger than 40 years old, with mean age 38.0 ( $\pm$  8.4). With regard to marital status, half the nurses were single and the other half was divided equally between married, widows and in stable relationship.

On the professional profile, with regard to training, 5 (83.3%) attended nursing in public universities and 3 (50.0%) had graduated for more than 15 years; 5 (83.3%) nurses said they had attended updating courses, of which 2 (40.0%) were postgraduation in broad sense mode and two (40.0%) fell into another modality that was not postgraduation. Half of the sample (50.0%) reported having more than 15 years of work experience and all interviewees, had worked or were working in hospitals as clinical nurses, besides the experience in primary care. With regard to working time in the FHS, 5 (83.3%) nurses had been working in the surveyed team for less than five years.

The nurse should direct the care, in particular, to patients predisposed to have this type of complication (PU), for prevention is still the best type of care. In this sense, the nursing staff must have professional expertise to identify, minimize and / or mitigate the risk factors for PU, as a precautionary approach should guide the practice of nursing care.<sup>21</sup>

**Table 4** - Data related to the care of PU performed by the nurses participating in the research (n=6)

Variables	n	%
Risk factors for PU		
Nutritional status	02	33.3
Incontinence	02	33.3
Pressure on bony prominences	01	16.7
Others	01	16.7
Known prevention measures *		
Changing position	06	100.0
Minimizing pressure	06	100.0
Others	03	50.0
Physical examination of the skin	02	33.3
Preventive measures used *		
Changing position	05	83.3
Minimizing pressure	04	66.7
Physical examination of the skin	03	50.0
Others	03	50.0
Moisture management	01	16.7
Total	06	100.0

Source: direct search

\* Multiple choice questions.

In assessing the knowledge of nurses about risk factors for developing PU, they cited more often the nutritional state, incontinence and pressure on bony prominences. As for the known preventive measures, the professionals mentioned changing positions and decreased pressure through appropriate mattresses or foam pads; two (33.3%) reported physical examination of the skin and three (50.0%), other measures, such as controlling the moisture of the skin, use of moisturizers and sunflower oil and hygiene of patients.

With regard to preventive measures they have adopted in practice, five (83.3%) guided as to the change of position, four (66.7%), about the actions that could minimize pressure and three (50.0%) performed skin evaluation (Table 4). Patient repositioning is considered an effective measure for prevention of PU, since the pressure on a specific area of the body, especially in the dorsal decubitus or sitting position, generates interruption of blood flow and oxygen and nutrient supply to the tissues.<sup>22</sup>

It is worth mentioning that 3 nurses (50.0%) used other preventive measures such as use of transparent film on bony prominences areas and treatment of grade I lesions. No professional performed or cited the risk assessment for developing decubitus ulcer using a scale such as the Braden scale as a preventive measure.

The process of risk assessment for the development of PU is essential, as it seeks to early detect the potential patient for this type of injury and thus implement specific preventive measures, as well as direct nursing interventions.<sup>23</sup> The aim of the use of scales is to assist nurses in clinical evaluation to predict whether the patient can develop injury and point the risk factors in evidence.<sup>24</sup>

The protocol prepared by the Ministry of Health for prevention of PU features six essential steps that must be undertaken as reliable prevention strategies for all patients

identified as at risk. The first is to evaluate pressure ulcers in the admission of all patients, in which the skin must be evaluated to detect the presence of lesions. Later, professionals should reassess daily the risk of developing PU in all inpatients or under home care. The third is the daily inspection of the skin, followed by management of moisture to keep the patient dry and the skin hydrated. The penultimate is the optimization of nutrition and hydration. Finally, professionals must promote the redistribution of pressure, especially over bony prominences, which is the main concern <sup>(1)</sup>.

**Table 5** - Distribution of bedridden patients participating in the research according to the Braden Scale (n=32)

BRADEN (Risks)	N	%	CI95%
Low	06	18.8	4.5-33.0
Moderate	16	50.0	31.7-68.3
High	10	31.2	14.3-48.2
Total	32	100.0	

Source: direct search

Of the 32 bedridden patients, 16 (50.0%) were classified as moderate risk for developing PU and none was categorized with very high risk. However, the percentage of 18.8% of respondents who achieved Braden score less than or equal to 18 is significant, thereby indicating risk for development of this type of lesion (Table 5). The lowest score found in the Braden Scale was 10 and the maximum was 22. Research results showed that the higher the score achieved on the scale, the lower the number of people with decubitus ulcer.<sup>10</sup>

The Ministry of Health protocol recommends that, for patients with low risk in the Braden scale, preventive measures should be carried out, such as: schedule of changing positions; optimization of mobilization; heel protection; management of moisture; nutrition, friction and shear; as well as use of pressure redistribution surfaces. For those who are considered at moderate risk, all the measures cited for the low-risk patients should be performed, adding changing positions, with positioning at 30°. For those at high risk, it is recommended the same measures targeted to those of moderate risk, plus the use of foam pads to facilitate lateralization to 30°. For patients with very high score to develop PU, all the aforementioned steps are recommended and also the use of dynamic support surfaces with little loss of air, if possible, in addition to pain management.<sup>1</sup>

In relating measures recommended by the MOH protocol, considering the classification of risk, with those used by the interviewed nurses, it was found that they used only and / or mainly the preventive measures for low risk, which is worrisome, considering the effective measures for prevention of these diseases in patients with predisposition and risk factors for developing and predominant risk rating from moderate to severe.

## CONCLUSION

Most bedridden patients were elderly people whose main causes were previous stroke and fall from their own height. They have one or more risk factors for developing PU and were mainly under the care of family members.

It was also evidenced by the results that nurses knew some risk factors for developing PU and the most effective measures proven in the literature to avoid them, such as changing positions and decreasing pressure on the skin. However, in the daily routine, the measures they carry out or give guidance are not sufficient to meet the needs of such patients, since most were classified as moderate to high risk, according to the Braden scale. In this case, the MOH recommends association of several other measures, not only those that have been mentioned by professionals.

Of course, the work routine often does not meet the actual needs of these patients. Perhaps, some of these bedridden should be served by different types of home care, for which they need to be classified according to the complexity of the cases. Thus, they would receive a close and frequent monitoring, and prevention and treatment of lesions already installed would be more effective.

Finally, this study probably has limitations and difficulties as it is an end-of-course paper and does not allow a longer time for data collection, besides the small sample size. However, it has added important information on the clinical conditions of patients assisted, which infers knowledge for the development of preventive care plans.



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